Climate change mitigation in low-income communities in Colorado: Home weatherization impacts on respiratory health and indoor air quality during wildfires

Home Weatherization
INDOOR AIR QUALITY & HEALTH

Fire Study

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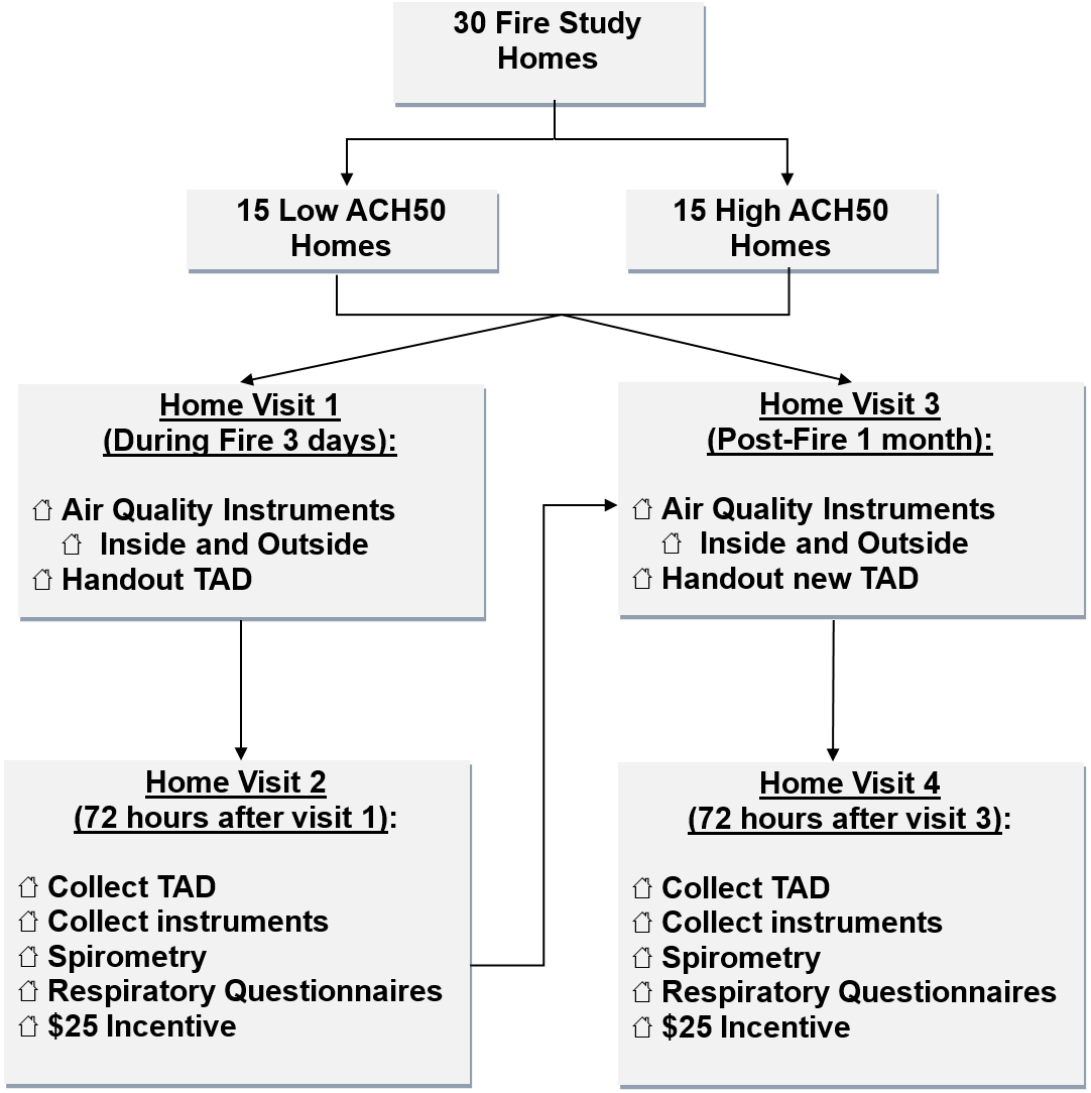
Mechanical Engineering
UNIVERSITY OF COLORADO BOULDER

colorado school of public health

THE OHIO STATE UNIVERSITY

- Gaseous and particulate concentration logging
  - CO
  - CO_2
  - HCHO
  - $PM_{2.5}$
  - O_3
  - Temp
  - RH%

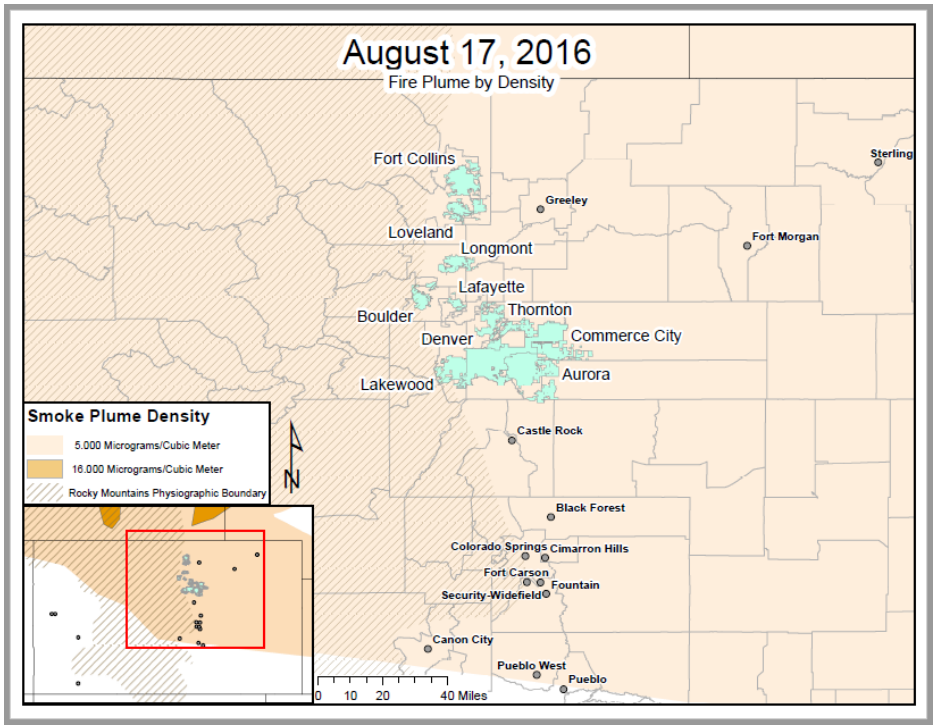


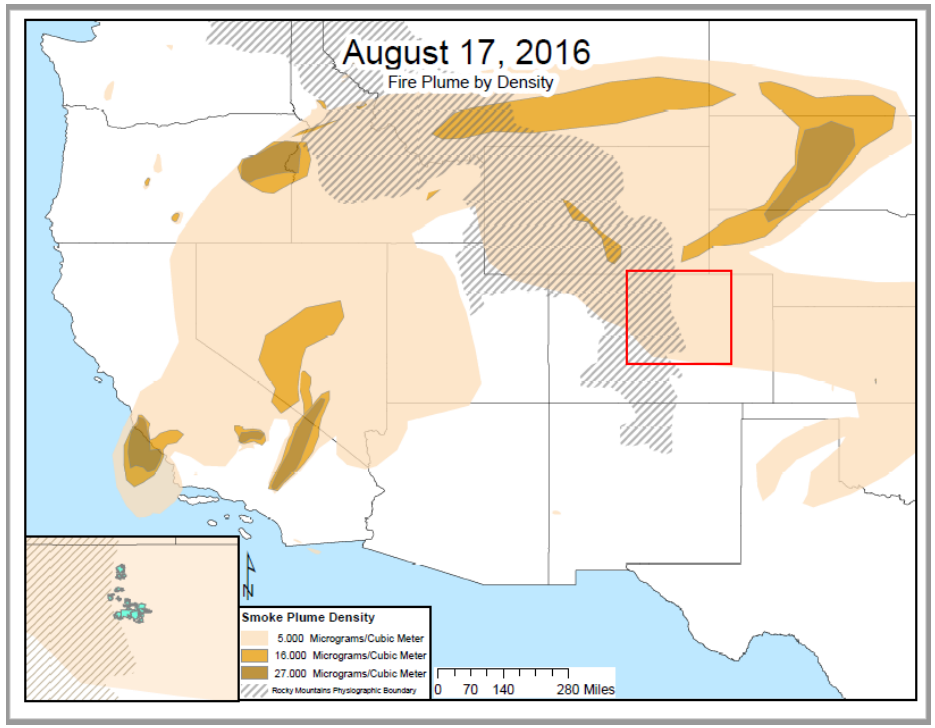
Activity: Windows and/or Doors Open

Day 1	Location	Morning	Afternoon	Evening	Early Morning (Night time)
M T W Th F Sa Sun	Kitchen	5 6 7 8 9 10 11	12 1 2 3 4 5	6 7 8 9 10 11	12 1 2 3 4
	Living Room	5 6 7 8 9 10 11	12 1 2 3 4 5	6 7 8 9 10 11	12 1 2 3 4
DATE	Bedroom	5 6 7 8 9 10 11	12 1 2 3 4 5	6 7 8 9 10 11	12 1 2 3 4
___/___/___	House Empty	5 6 7 8 9 10 11	12 1 2 3 4 5	6 7 8 9 10 11	12 1 2 3 4


Please Do
NOT TOUCH

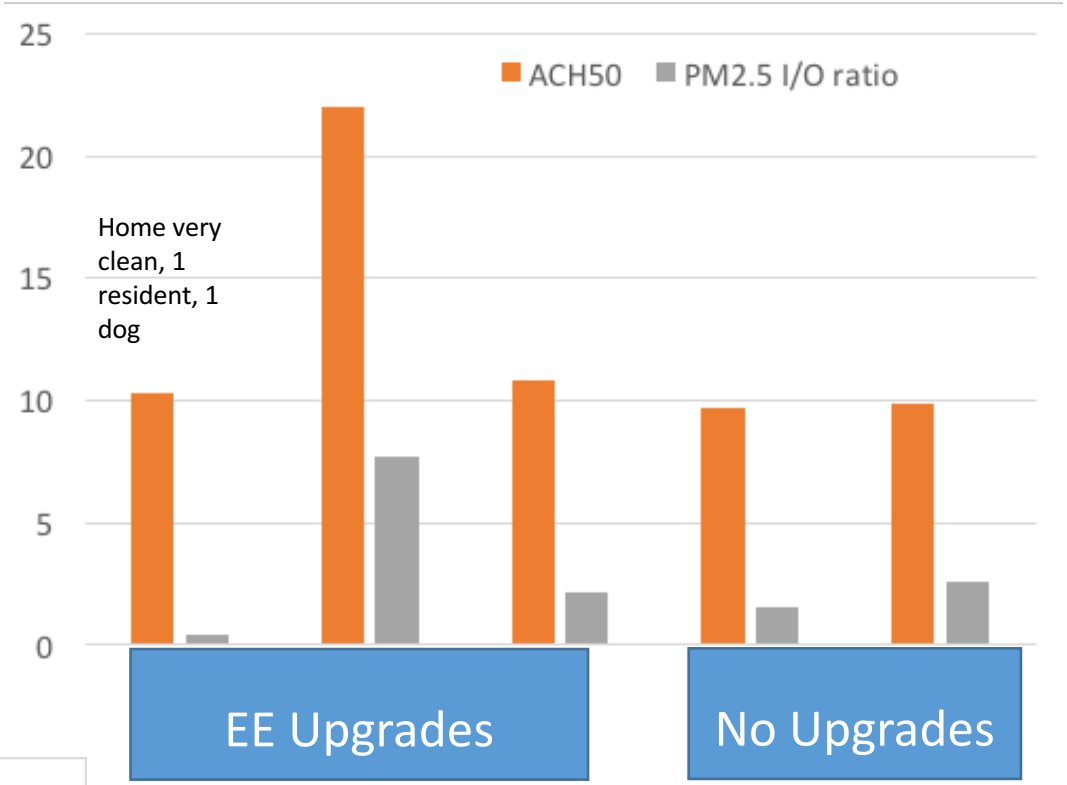
Summer 2016 - Near vs. Far Fires

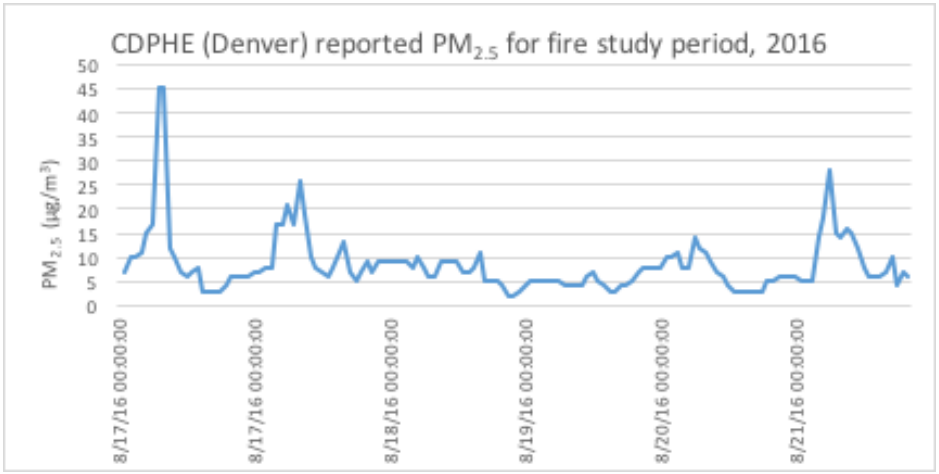




Fire Study Results

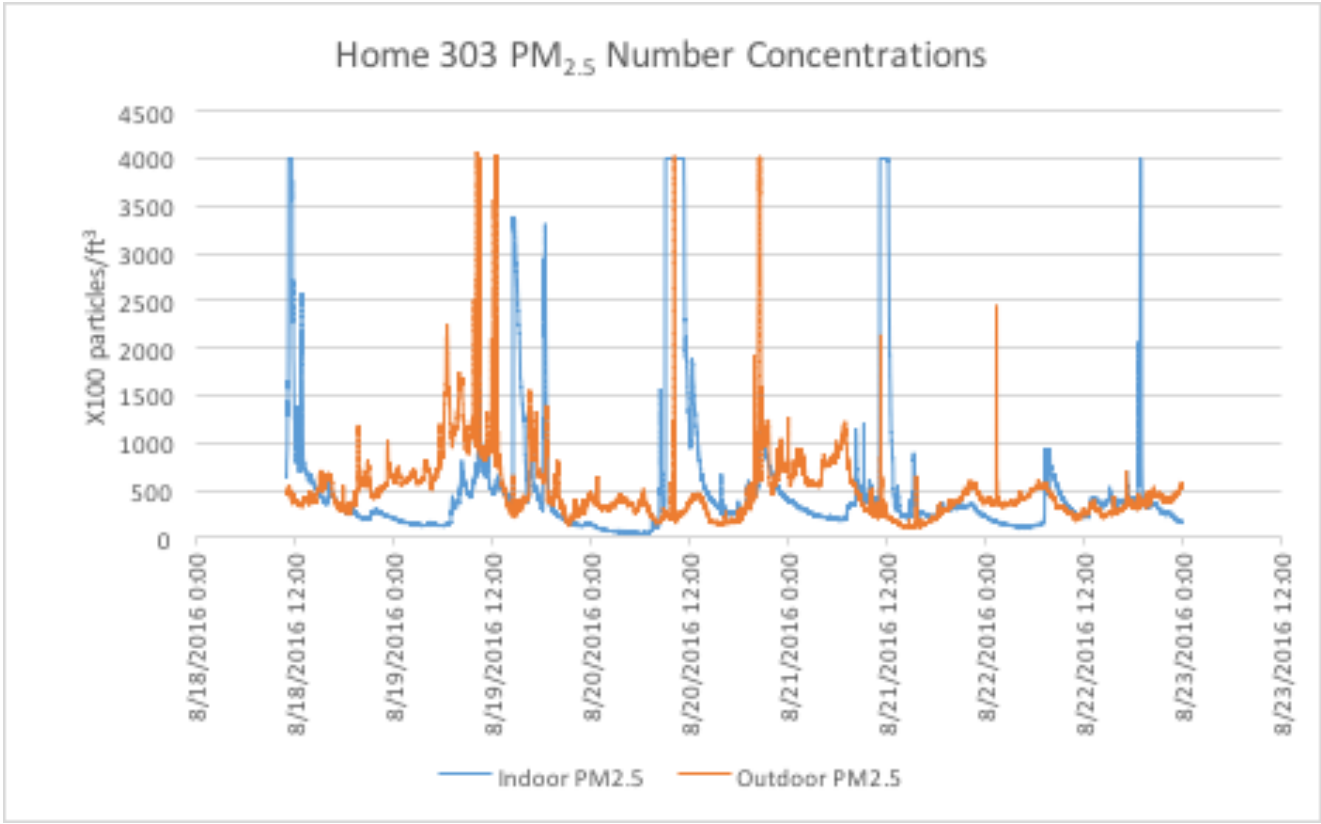
- 5 homes enrolled in 2016
- PM2.5 I/O > 1 (except in one very clean home)





Fire Study Results

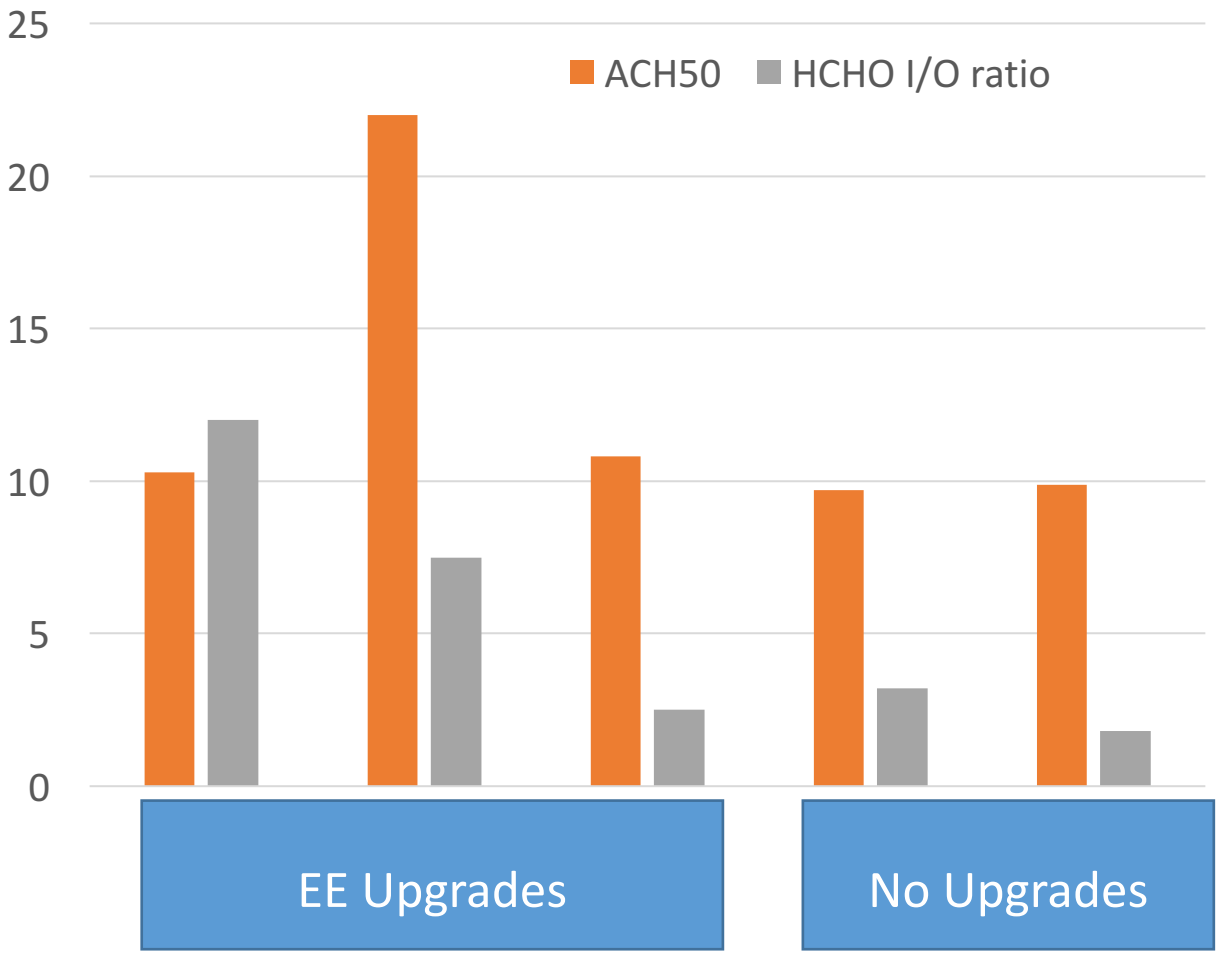
Outdoor PM2.5 typically higher, except during cooking events



HCHO

Home ID	Weatherized	ACH50	Indoor (ppb)	Outdoor (ppb)	I/O ratio
302	Y	10	29	2.5	12
304	Y	22	5.6	2.2	2.5
306	Y	10.8	6.4	3.5	1.8
305	N	9.9	3.9	1.2	3.2
303	N	9.7	15	2.0	7.5

Most below the COEHHA recommended limit of 27 ppb



Acknowledgements

- Xcel Energy
- Boulder Housing Partners
- Habitat for Humanity
- EPA Star Grant #R835752
- Residents
- Students at University of Colorado and Ohio State University

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